

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 2, 2004

MEMORANDUM FOR: J. K. Fortenberry, Technical Director
FROM: T. Hunt and W. White, Pantex Site Representatives
SUBJECT: Pantex Plant Activity Report for Week Ending July 2, 2004

Implementation of Technical Safety Requirements (TSRs). Many of the design features identified in Pantex documented safety analyses are implemented through the use of administrative controls. Two events have recently occurred where a design feature had not been initially qualified prior to placing the design feature into service (detonator covers and hydraulic fluid). In a letter to BWXT this week, PXSO noted that, without the initial qualification, there is no technically defensible basis to conclude the design feature will perform its safety function. In the letter, PXSO directed BWXT to make a change to the TSRs that explicitly makes the failure to initially ensure that a design feature meets the intent of the TSR a violation of the TSR. Based on the two recent discoveries of design features that were not initially qualified, PXSO has also requested that BWXT conduct a review of design features to ensure they have all been initially qualified. [I, W4]

Lightning Protection: On Thursday, PXSO issued a safety evaluation report (SER) approving a justification for continued operation (JCO) related to Building 12-44. The *Technical Safety Requirements for Pantex Facilities* identify the facility structure as a safety-class design feature whose function is to limit the differential voltage inside the facility in the event of a lightning strike. The extent to which the facility will limit the voltage has been established through analysis by Sandia National Laboratories (SNL) and verified through an initial, low-voltage testing program conducted by SNL. The TSRs require facility structures be retested every five years. For Building 12-44, the initial testing was done in 1998. These tests identified connectivity in the facility structure not credited in the analysis and allowed the maximum voltage assumed in a lightning strike to be lowered from 141 kV to 25 kV for a bonded facility. The corresponding stand-off distance was reduced from 20 inches to 5 inches.

The retest for these facilities was due in 2003. However, the TSRs allow a 25 percent grace period on an "as-needed" basis. In the JCO, BWXT noted the retesting did not occur until May 2004, when the grace period for these facilities was nearly expired. To date, BWXT has been unable to reconcile the tests conducted in May 2004 with the initial testing conducted by SNL. The JCO identifies a number of potential reasons and notes that BWXT will not be able to reconcile the differences prior to the expiration of the grace period (July 3, 2004). As a compensatory measure, BWXT raised the bonded voltage from 25 kV back to the 141 kV number identified in the original analysis and increased the stand-off distance to 20 inches. In addition, for nuclear explosive-like assemblies (NELAs) in certain configurations, hoisting operations without insulators qualified for 141 kV must be suspended during lightning warnings.

PXSO approved the JCO, but noted that if BWXT had conducted the testing within the five year window, the grace period could have been used to reconcile the tests, negating the need for the JCO. PXSO also noted BWXT should make an effort to more closely duplicate the methodology and procedures used in the original SNL tests. As a condition of approval, PXSO required the compensatory measure related to hoisting operations be applied to nuclear explosive operations as well as operations on NELAs. [I, E1]